

What is claimed is:

1. A method for manufacturing a light emitting device comprising at least one layer of a p-type compound semiconductor layer on an active layer where light is generated and a p-type electrode on the p-type compound semiconductor layer, the method comprising:
 - forming the p-type compound semiconductor layer on the active layer and annealing twice the resultant structure; and
 - forming the p-type electrode on the annealed p-type compound semiconductor layer.
2. The method of claim 1, wherein annealing twice the resultant structure comprises:
 - performing first annealing on the resultant structure in a nitrogen atmosphere after the p-type compound semiconductor layer is formed; and
 - performing second annealing on the first annealed resultant structure in an oxygen atmosphere.
3. The method of claim 2, wherein the first annealing is performed at an atmospheric pressure at a temperature of 300-1000°C for a duration from 30 seconds to 3 hours.
4. The method of claim 2, wherein the second annealing is performed at an atmospheric pressure at a temperature of 300-1000°C for a duration from 30 seconds to 3 hours.
5. The method of claim 1, wherein the p-type electrode is formed as a single layer or a multi-layer.
6. The method of claim 5, wherein the single layer is formed of a Pd layer, a Ni layer, a Pt layer, or an Au layer.
7. The method of claim 5, wherein the multi-layer is formed of at least two layers selected from the group consisting of a Pd layer, a Ni layer, a Pt layer, and an Au layer.

8. The method of claim 1, wherein the p-type compound semiconductor layer is formed of a p-GaN layer.

5 9. The method of claim 1, wherein the p-type compound semiconductor layer is formed as a multi-layer, and the uppermost layer of the p-type compound semiconductor layer that contacts the p-type electrode is formed of a p-GaN layer.

10 10. The method of claim 2, wherein the p-type electrode is formed as a single layer or a multi-layer.

11. The method of claim 2, wherein the p-type compound semiconductor layer is formed of a p-GaN layer.

15 12. The method of claim 2, wherein the p-type compound semiconductor layer is formed as a multi-layer, and the uppermost layer of the p-type compound semiconductor layer that contacts the p-type electrode is formed of a p-GaN layer.

20 13. A method for manufacturing a light emitting device, the method comprising:

forming at least one layer of n-type compound semiconductor layer on a substrate;

forming an active layer on the n-type compound semiconductor layer, the active layer where light is generated;

25 forming at least one layer of p-type compound semiconductor layer on the active layer;

annealing twice the resultant structure including the p-type compound semiconductor layer;

forming a p-type electrode on the p-type compound semiconductor layer; and

30 forming an n-type electrode to contact the n-type compound semiconductor layer.

14. The method of claim 13, wherein annealing twice the resultant structure comprises:

performing first annealing on the resultant structure in a nitrogen atmosphere;
and
performing second annealing on the first annealed resultant structure in an
oxygen atmosphere.

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15. The method of claim 14, wherein the first annealing is performed at an
atmospheric pressure at a temperature of 300-1000°C for a duration from 30
seconds to 3 hours.

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16. The method of claim 14, wherein the second annealing is performed at
an atmospheric pressure at a temperature of 300-1000°C for a duration from 30
seconds to 3 hours.

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17. The method of claim 13, wherein the p-type electrode is formed as a
single layer or a multi-layer.

18. The method of claim 17, wherein the single layer is formed of a Pd
layer, a Ni layer, a Pt layer, or an Au layer.

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19. The method of claim 17, wherein the multi-layer is formed of at least
two layers selected from the group consisting of a Pd layer, a Ni layer, a Pt layer,
and an Au layer.

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20. The method of claim 13, wherein the p-type compound semiconductor
layer is formed of a p-GaN layer.

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21. The method of claim 13, wherein the p-type compound semiconductor
layer is formed as a multi-layer, and the uppermost layer of the p-type compound
semiconductor layer that contacts the p-type electrode is formed of a p-GaN layer.

22. The method of claim 14, wherein the p-type electrode is formed as a
single layer or a multi-layer.

23. The method of claim 14, wherein the p-type compound semiconductor layer is formed of a p-GaN layer.

24. The method of claim 14, wherein the p-type compound semiconductor layer is formed as a multi-layer, and the uppermost layer of the p-type compound semiconductor layer that contacts the p-type electrode is formed of a p-GaN layer.